

Claims:

1. A method for cleaning welding torches, wherein a cleaning or wetting liquid is applied to the tip of the welding torch and the tip of the welding torch is subsequently exposed to an electromagnetic field for the contactless removal of foreign substances, characterized in that the welding torch is substantially in the same position during the application of the cleaning liquid or wetting liquid and the subsequent exposure to an electromagnetic field.
2. A cleaning method according to claim 1, characterized in that said cleaning liquid is applied by immersing the tip of the welding torch into the cleaning liquid.
3. A cleaning method according to claim 1, characterized in that said cleaning liquid is applied by spraying the tip of the welding torch with said cleaning liquid.
4. A cleaning method according to any one of claims 1 to 3, characterized in that the steps of applying cleaning liquid and electromagnetic spatter removal are repeated.
5. A cleaning method according to any one of claims 1 to 4, characterized in that the welding torch, for applying said cleaning liquid, is lowered relative to the position assumed during electromagnetic spatter removal.
6. An apparatus for cleaning welding torches (11), including a device for applying cleaning liquid to the tip of a welding torch (11), and a coil (3) having an opening (4) for the insertion of the welding torch (11) to subject said welding torch to electromagnetic cleaning, and a supply device (7) connected with said coil (3), characterized in that the device for applying cleaning liquid and the coil (3) are arranged in a common housing (1) together with a waste receptacle (6) arranged below the coil (3) to receive the electromagnetically removed foreign substances.
7. A cleaning apparatus according to claim 6, characterized in that the device for applying cleaning liquid is comprised of a tub (2) containing cleaning liquid for the immersion of the welding torch (11).
8. A cleaning apparatus according to claim 6, characterized in that the device for applying cleaning liquid is comprised of at least one nozzle (32).

9. A cleaning apparatus according to anyone of claims 6 to 8, characterized in that the supply device (7) for the coil (3) is arranged in the housing (1).
10. A cleaning apparatus according to anyone of claims 6 to 9, characterized in that the waste receptacle (6) is pivotally arranged.
11. A cleaning apparatus according to anyone of claims 6 to 10, characterized in that the waste receptacle (6) is removable from the housing (1).
12. A cleaning apparatus according to anyone of claims 6 to 11, characterized in that a refill container (5) connected with the device for applying cleaning liquid is arranged in the housing (1).
13. A cleaning apparatus according to anyone of claims 6 to 11, characterized in that a liquid connection (9) connected with the device for applying cleaning liquid is arranged in the housing (1).
14. A cleaning apparatus according to anyone of claims 6 to 13, characterized in that the housing (1) comprises wheels (10) or the like.
15. A cleaning apparatus according to anyone of claims 6 to 14, characterized in that a device for detecting the immersion depth of the welding torch (11) in the coil (3) is arranged on the opening (4) of the coil (3).
16. A cleaning apparatus according to claim 15, characterized in that the device for detecting the immersion depth is comprised of a light source (13) and an optical sensor (14) detecting the light rays reflected by a reflex element, preferably a reflex ring (12), appropriately arranged on the welding torch (11).
17. A cleaning apparatus according to anyone of claims 6 to 16, characterized in that a device (15) for cutting a welding wire (16) fed to the welding torch (11) is arranged in the housing (1).
18. A cleaning apparatus according to claim 17, characterized in that the cutting device (15) is arranged below the coil (3).
19. A cleaning apparatus according to claim 18, characterized in that a stop plate (18) is arranged below the coil (3), against which the welding wire (16) is advanced in order to adjust the length (L) by which the welding wire (16) projects out of the welding torch (11).

20. A cleaning apparatus according to claim 19, characterized in that the stop plate (18) is made of an electrically conductive material such that the impact of the welding wire is detectable by the resulting electrical contact.
21. A cleaning apparatus according to any one of claims 6 to 20, characterized in that a device for controlling the temperature of the cleaning liquid is provided.
22. A cleaning apparatus according to any one of claims 6 to 21, characterized in that sensors (19, 20) are provided for detecting the welding torch (11).
23. A cleaning apparatus according to any one of claims 6 to 22, characterized in that sensors (19, 20) are provided for detecting the filling level in the tub (2) and/or in the refill container (5).
24. A cleaning apparatus according to any one of claims 6 to 23, characterized in that a control device (22) for controlling the cleaning procedure is arranged in the housing (1).
25. A cleaning apparatus according to any one of claims 6 to 24, characterized in that an interface (23) for connection to a control device (22) for controlling the cleaning procedure is arranged on the housing (1).
26. A cleaning apparatus according to claim 24 or 25, characterized in that said control device (22) or interface (23) for the control device (22), respectively, is connected with the coil (3) and the supply device (7) for the coil (3) and the optional device for detecting the immersion depth of the welding torch (11) and the optional cutting device (15) and the optional temperature control device (24) and optional sensors (19, 20, 21).
27. A cleaning apparatus according to any one of claims 6 to 26, characterized in that the components provided in the housing (1) are interconnected by a bus system (25).
28. A cleaning apparatus according to any one of claims 6 to 27, characterized in that at least one display (27) is arranged on the housing (1).
29. A cleaning apparatus according to any one of claims 6 to 28, characterized in that a free space (28) is provided below or within the housing (1), particularly for storing refill containers (5).
30. A cleaning apparatus according to claim 29, characterized in

that at least one refill container (5) arranged in the free space (28) is connected via a pump or the like with the device for applying cleaning liquid.

31. An apparatus for cleaning welding torches (11), including a device for applying cleaning liquid to the tip of a welding torch (11), and a coil (3) having an opening (4) for the insertion of the welding torch (11) to subject said welding torch to electromagnetic cleaning, and a supply device (7) connected with said coil (3), characterized in that the device for applying cleaning liquid is arranged within or below the opening (4) of the coil (3) so as to enable the application of cleaning liquid and said electromagnetic cleaning substantially in the same position of the welding torch (11).

32. A cleaning apparatus according to claim 31, characterized in that the device for applying cleaning liquid is comprised of a tub (2) containing cleaning liquid.

33. A cleaning apparatus according to claim 32, characterized in that the tub (2) is connected with a device (29) for, preferably vertical, movement.

34. A cleaning apparatus according to any one of claims 31 to 33, characterized in that the device for applying cleaning liquid is comprised of at least one nozzle (32).

35. A cleaning apparatus according to claim 34, characterized in that several nozzles (32) are arranged within the opening (4) of the coil (3).

36. A cleaning apparatus according to claim 34 or 35, characterized in that the at least one nozzle (32) is arranged below the opening (4) of the coil (3).

37. A cleaning apparatus according to any one of claims 34 to 36, characterized in that at least one nozzle (32) is movably arranged.

38. A cleaning apparatus according to any one of claims 31 to 37, characterized in that the device for applying cleaning liquid is connected with a refill container (5), preferably via a pump (31) or the like.

39. A cleaning apparatus according to any one of claims 31 to 38, characterized in that the device for applying cleaning liquid is connected with a liquid connection (9).

40. A cleaning apparatus according to any one of claims 31 to 39, characterized in that a device for detecting the immersion

depth of the welding torch (11) in the coil (3) is arranged on the opening (4) of the coil (3).

41. A cleaning apparatus according to claim 40, characterized in that the device for detecting the immersion depth is comprised of a light source (13) and an optical sensor (14) detecting the light rays reflected by a reflex element, preferably a reflex ring (12), appropriately arranged on the welding torch (11).

42. A cleaning apparatus according to anyone of claims 31 to 41, characterized in that a device (15) for cutting a welding wire (16) fed to the welding torch (11) is arranged in the housing (1).

43. A cleaning apparatus according to claim 42, characterized in that the cutting device (15) is arranged below the coil (3).

44. A cleaning apparatus according to claim 43, characterized in that a stop plate (18) is arranged below the coil (3), against which the welding wire (16) is advanced in order to adjust the length (L) by which the welding wire (16) projects out of the welding torch (11).

45. A cleaning apparatus according to claim 44, characterized in that the stop plate (18) is made of an electrically conductive material such that the impact of the welding wire is detectable by the resulting electrical contact.

46. A cleaning apparatus according to any one of claims 31 to 45, characterized in that a device for controlling the temperature of the cleaning liquid is provided.

47. A cleaning apparatus according to any one of claims 31 to 46, characterized in that sensors are provided for detecting the welding torch (11).

48. A cleaning apparatus according to any one of claims 31 to 47, characterized in that sensors (19, 20) are provided for detecting the filling level in the tub (2) and/or in the refill container (5).

49. A cleaning apparatus according to any one of claims 31 to 48, characterized in that a control device (22) for controlling the cleaning procedure is provided.

50. A cleaning apparatus according to any one of claims 31 to 49, characterized in that an interface (23) for connection to a control device (22) for controlling the cleaning procedure is provided.

51. A cleaning apparatus according to claim 49 or 50, charac-

terized in that said control device (22) or interface (23) for the control device (22), respectively, is connected with the coil (3) and the supply device (7) for the coil (3) and optionally provided further devices of the cleaning apparatus.

52. A cleaning apparatus according to any one of claims 31 to 51, characterized in that the components of the cleaning apparatus are interconnected by a bus system (25).